

L 8707465
REFERENCE NR: AP4044951

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crystals were grown by the Czochralski method in the <111> direction. The following interconnected main factors were found experimentally to be responsible for polytropy of impurities: formation of the M_A_x -type complexes (where M is a semiconductor and A is an impurity) and clusters; inclusions of the second phase formed during crystallization; formation of an impurity island of dislocations; migration of an impurity sublattice in the crystal with accompanying segregation of the impurity in the island; and the periodical distribution of resistivity along the long section of a crystal. Aging or heat treatment of germanium crystals caused an increase of the carrier concentration and a continual movement between the Hall measurement and the carrier concentration data. Migration of dislocations and concentration of impurities decreased at the same time. These facts are explained by the migration of an impurity into solid solution. Isotropizing through the heat treatment did not produce the same effect. The following factors are considered to be important:

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dependent on the conditions of extraction and the nature of the extracting reagent and the interaction between the reagent and the base component of the mixture. It is important to note the appearance of polytropy, since the coefficient depends on the distribution coefficient of the base between the two solvents and is formula:

L 10776-65 ENT(m)/EXP(b) REC(c)/ESD(t)/ESD(gs)/ASD(a)-5/AS mp . 200 AFAL JD

ACCESSION NR: AP4044958

S/0181/64/006/009/2825/2830

AUTHORS: Andrianov, D. G.; Dakhovskiy, I. V.; Omel'yanovskiy, E. M.
Fistul', V. I.

TITLE: Anisotropic scattering of electrons in heavily doped germanium

SOURCE: Fizika tverdogo tela, v. 6, no. 9, 1964, 2825-2830

TOPIC TAGS: germanium, electron scattering, electron mobility, galvanomagnetic effect, impurity scattering, phonon scattering

ABSTRACT: Comparison of the values of the electron mobility in heavily doped n-type germanium, determined by Fistul, Iglitsyn, Omel'yanovskiy, and Andriyanov (FTT, 4, 1965, 1370; 1962, 470, 1964) with the theory of scattering by acoustical phonons and ionized impurities has failed to give even qualitative agreement. The present paper compares the theory of the anisotropic scattering

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with the galvanomagnetic effect data (reference as above) for As-doped n-type germanium obtained for a wide range of impurity concentrations and temperatures. Expressions are obtained for the components of the relaxation time tensor in the case of scattering from impurity ions in general. It is shown that the electron scattering in heavily doped germanium is basically anisotropic and that the components of the effective mass tensor are independent of the impurity concentration and temperature. "The authors thank Prof. A. G. Samoylovich for discussing the results and for advice." Orig. art. has: 2 figures, and 9 formulas.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti, Moscow (State Scientific-Research and Design Institute of the Rare-Metal Industry)

374-64

58

NR REF Sov: 010

17810: 103

Name: Z/1

1/25 EPT(1)/EPA(s)-2/EPT(r)/EPP(r)-2/EPR-2/EPR-3/EPR-4/EPR-5/EPR-6

Authors: Aleyev, M. I.; Fistul', V. I.; Arasly*, I. I.

TITLE: Investigation of the thermal conductivity of strongly doped semiconductors

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3700-3701

TOPIC TAGS: germanium, ²¹arsenic, ²¹gallium, single crystal, doping, thermal conductivity, phonon, temperature dependence

ABSTRACT: In view of the interest in strongly doped semiconductors, the authors investigated the thermal conductivity of germanium strongly doped with arsenic and gallium. The single crystals of germanium were doped as they were drawn from the melt. The impurity concentration, determined from measurements of the Hall effect, amounted to $1.4 \times 10^{14} \dots 1 \times 10^{20} \text{ cm}^{-3}$. The thermal conductivity was measured by a stationary method. A plot of the coefficient of thermal conductivity as a function of the impurity concentration at 300K is shown in Fig. 1 of the reference. Calculations show that the electronic fraction of the thermal conductivity is insignificant and that the main role in the heat transfer is played

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ACCESSION NR: AP5000672

by the phonons. Consequently the decrease in the thermal conductivity at large carrier concentration is due to scattering of phonons by the minority atoms. It is seen from the figure that the thermal conductivity of the carrier is higher than that of phonon. The effect of carrier concentration on the temperature dependence of the thermal conductivity will be discussed in a later paper. Orig. art. has 2 figures.

ASSOCIATION Institut fiziki AN AzerbSSR, Baku (Institute of Physics, AN AzerbSSR)

SUBMITTED: 17Jun64

ENCL: 01

SUB CODE: SS

NR REF Sov: 003

OTHER: 003

Card 2/3

L 18291-65
ACCESSION NR: AP5000672

ENCLOSURE: 01

0

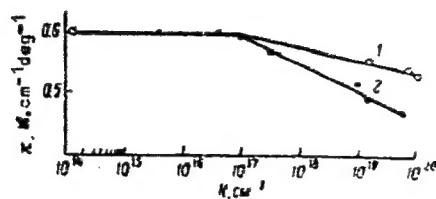


Fig. 1. Dependence of the coefficient of thermal conductivity on the impurity concentration at 300K for n-type (1) and p-type (2) germanium

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L 102-2-65 EVT(m)/EVP(t)/EVP(b) IJP(c)/SSD/AFWL/AJP(a)-5/DPW/a-/RUEW/c)/ESD(c)/
RUEW/t)

ACCESSION NR: AP5006692

5/0181/64/006/012/3738/3740

AUTHOR: Fistul', V. I.

TITLE: Determination of the deep copper level in GaAs by the tunnel spectroscopy
method

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3738-3740

TOPIC TAGS: p-n junction, tunnel diode, Hall mobility, thermal emf, Nernst-Ettingshausen effect

ABSTRACT: The tunnel spectroscopy method requires a p-n junction of a tunnel diode with a deep level (for example, copper level) in the n- and p-type regions of the crystal. The current of electrons from the conduction band to the copper level E_{Cu} in the n-type region begins to flow when

$$U_1 = E_{Cu} + \mu_p$$

where U_1 is the external voltage applied to the junction. It follows that to determine E_{Cu} it is sufficient to know the position of the Fermi level (μ_p) in the

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L 20282-65

ACCESSION NR: AP5000692

p-type region of the crystal and to determine experimentally the bias voltage U_1 at the point where an additional current begins to flow near a minimum in the current-voltage characteristic of the tunnel diode. This method was applied to the determination of the deep level of copper in GaAs. The GaAs crystals were doped with zinc up to $(4-5) \times 10^{19} \text{ cm}^{-3}$. Copper was introduced during the preparation of the p-n junction. The measurements of the Hall mobility, thermal drift, and transverse Nernst-Ettingshausen effect made it possible to estimate the value of μ_p , which was found to be $0.065 \pm 0.004 \text{ eV}$ at liquid nitrogen temperature. The value of U varied from diode to diode within the limits $0.11 \pm 0.02 \text{ V}$. Thus, it was found that $E_{\text{Cu}} = 0.44 \pm 0.03 \text{ eV}$, which was in good agreement with $0.44 \pm 0.01 \text{ eV}$ obtained from the photoconductivity measurements. J. Blatt, J. and L. R. Winsberg, J. Phys. Chem. Solids, 1961, v. 22, p. 101. The authors V. N. Rayash, A. M. Agayev, and A. F. Lipsky carried out the work. Orig. art. has: 2 figures and 2 formulas.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti, Moskva (State Scientific Research and Design Institute of the Rare-Metal Industry).

SUBMITTED: 15Jul64

ENCL: 00

SUB CODE: SS

NR REF Sov: 001

OTHER: 001

Card 2/2

MIL'VIDSKIY, M.G.; FISTUL', V.I.; GRISHINA, S.P.

Behavior of impurities in heavily doped semiconductors. Fiz.
tver. tela 6 no.9:2762-2770 S '64.

1. Gosudarstvennyy nauchno-issledovatel'skiy institut redko-
metallicheskoy promyshlennosti, Moskva.

(MIRA 17:11)

ANDRIANOV, D.G.; DAKHOVSKIY, I.V.; OMEL'YANOVSKIY, E.N.; FISTUL', V.I.

Anisotropic electron scattering in heavily doped germanium.
Fiz. tver. tela 6 no.9:2825-2830 S '64.

(MIRA 17:11)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy
institut redkometallicheskoy promyshlennosti, Moskva.

ALIYEV, M.I.; FISTUL', V.I.; ARASLY, D.G.

Heat conductivity of heavily doped germanium. Fiz. tver. tela
6 no.12:3700 D '64 (MIRA 18:2)

1. Institut fiziki AN AzSSR, Baku.

FISTUL', V.I.

Use of the tunnel spectroscopy method in determining a deep
copper level in GeAs. Fiz. tver. tela 6 no.12:3738-3740 D '64
(MIRA 18:2)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy
institut redkometallicheskoy promyshlennosti, Moskva.

EST(1)/EST(n)/EWP(t)/EWP(b) IJP(c) JP

ACCE. CODE NO.: AP5006884

S/0181/65/07/003/0796/0801

AUTHOR: Andrianov, D. G.; Fistul', V. I.

TITLE: Planar Hall effect in strongly doped germanium ?

SOURCE: Fizika tverdogo tela, v. 7, no. 3, 1965, 796-801

TOPIC TAGS: Hall effect, planar Hall effect, n type germanium, doping, semiconductors, magnetic effect

ABSTRACT: Theoretical expressions are presented for the kinetic coefficients of the planar Hall effect with account of the anisotropy of the effective masses of the carriers and the relaxation time. The planar Hall effect consists in the production of an electric field perpendicular to the current flowing through a cross-section of a magnetic field, with all three vector quantities being parallel to the current.

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ACCESSION NR: AP5006884

effect was measured in n-Ge with electron density $10^{16} \text{ cm}^{-3} \times 10^{18} \text{ cm}^{-3}$. The measurement was made at 77 and 300K in samples oriented in the $\langle 110 \rangle$ and $\langle 111 \rangle$ directions.

STUDIES VERIFYING DIAUBIOMECHANICAL PROPERTIES

NR:

ENCL: 0

17

OTHER: 005

L 36227-6^c EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(b) Pz-6/Pa₁ S/9109/65/010/003/185-3/1874 JG/AT

AUTHOR: Agayev, A. M.; Zakhvatkin, G. V.; Iglitsyn, M. L.; Pervova, L. V.
Editor: V. I.

TITLE: Inductive properties of p-n junctions in deep-level germanium

Source: Radiotekhnika i elektronika, v. 10, no. 3, 1965, p. 573-574

TOPIC TAGS: semiconductor, pn junction

ABSTRACT: An experimental study of inductive susceptance of p-n junctions in Ge containing deep recombination centers is briefly reported. Ge specimens were doped with gold to a donor-impurity concentration of 1.3×10^{15} per cm^3 and tested at 0.75-12 Mc with currents from 0.005 to 6 mamp. The susceptance changed its sign at a 200-mv forward bias. A plot of the inductive susceptance vs. frequency is supplied. Orig. art. has: 2 figures and 1 formula. [03]

ASSOCIATION: none

SUBMITTED: 16Apr64

ENCL: 00

SUB CODE: SS

NO REF SOV: 604

OTHER: 002

ATD PRESS: 3220

Card 1/1

N2(3)/TVA(5)/EMP(1) T/EMP(t), LIP

ACCESSION NR: AP5017891

1963, MI 1963, 4

High-alloy germanium single crystal

Author Certificate tovarnykh zhakov, no. 11, 1963, 82

TOPIC TAGS: germanium, germanium single crystal, heat

ABSTRACT: This Author Certificate introduces a method of producing high-alloy germanium single crystals of electron-type conductivity by drawing from the melt. In this method high-alloy single crystals with stable electrical characteristics are obtained. The crystals are heat treated for 2-3 hr at about 1000°C.

ASSOCIATION: none

SUBMITTED: 10Jan63

ENCL: 00

SUB CODE: MM, 55

NO REF Sov: 000
Card 1/1

OTHER: 000

ATD PRESS: 4050

L 10581-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JD
 ACC NR: AP5925384 SOURCE CODE: UR/0181/65/007/010/3042/3047

AUTHOR: Fistul', V. I.; Agayev, A. M.

ORG: State Design and Planning Scientific Research Institute of the Rare Metals Industry, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut red-kometallicheskoy promyshlennosti)

TITLE: Properties of the electron spectrum in heavily doped gallium arsenide

SOURCE: Fizika tverdogo tela, v. 7, no. 10, 1965, 3042-3047

TOPIC TAGS: gallium arsenide, tunnel diode, pn junction, volt ampere characteristic, electron spectrum, forbidden band

ABSTRACT: The expression for tunneling in the case of a continuous spectrum of levels in the forbidden band is

$$J = AD \exp \left\{ -\frac{4\pi w^2}{3\hbar} [E_p - eU - (\mu_p + \mu_n)] \right\}, \quad (1)$$

where

$$a = \frac{4(2\tilde{m})^{1/2}}{3\hbar} 0, \quad 0 \approx 1,$$

$$w = \sqrt{\frac{z}{2\pi e} \frac{N_{n+}N_d}{N_n N_d}},$$

$$\tilde{m} = \frac{m_n m_p}{m_n + m_p},$$

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ACC NR: AP5025384

I is the excess current of the tunnel diode; *U* is the bias at the *p-n* junction; *D* is the density of allowed levels; N_a and N_d are the concentrations of acceptors and donors on both sides of the *p-n* junction; μ_n and μ_p are the degrees of degeneration in the *n*- and *p*-regions of the crystal; E_g is the width of the forbidden band; χ is the characteristic constant of the semiconductor; and *A* is the constant which accounts for the area of the *p-n* junction. This paper gives experimental data on the "tail" of the density of states (*AD*) determined from this formula in the forbidden band of heavily doped gallium arsenide. *AD* is determined by finding the value of μ in the diffuse region of the diode without determining the concentration of majority charge carriers. Copper was added directly to zinc-doped GaAs crystals during formation of the *p-n* junction. A cathode-ray curve tracer was used with double differentiation of the current-voltage characteristics. A simple comparison of current-voltage curves for *p-n* junctions with and without copper at various temperatures shows that the copper causes a considerable increase in the excess current, and a shift in minimum current toward lower biases. The tunnel component of the curve was not affected: I_p and U_p remained constant. After taking the various parameters in formula (1) into consideration and assuming that μ_n , μ_p , w and m_n are the same for diodes with and without copper, \bar{m} was calculated and values of *AD* were determined from current-voltage curves for junctions without copper. The results are shown in the figure.

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L 10581-66

ACC NR: AP5025384

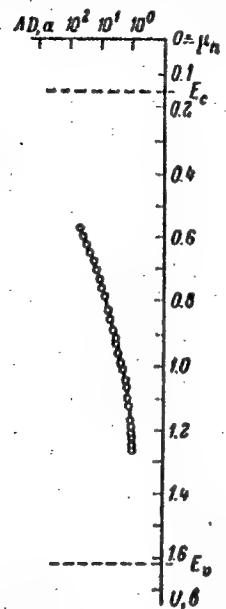


Fig. 1.

The authors thank V. N. Ravich and A. P. Fedosov for making the $p-n$ junctions used in control measurements. Orig. art. has: 5 figures, 9 formulas.

"Tail" of the density of states in the forbidden band of GaAs.

SUB CODE: 20/ SUBM DATE: 03Mar65/ ORIG REF: 007/ OTH REF: 004
Card 3/3

L 14123-66 EWT(m)/EWP(t)/EWP(z)/EWP(b) LJP(c) JD/HW
ACC NR: AP6000888

SOURCE CODE: UR/0181/65/007/012/3681/3682

AUTHORS: Fistul', V. I.; Agayev, A. M.

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B

ORG: State Scientific-research and Design Institute of the Rare-Metal
Industry, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i
proyektnyy institut redkometallicheskoy promyshlennosti)

TITLE: Determination of deep levels of Fe, Ni, and Co in gallium
arsenide

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3681-3682

TOPIC TAGS: impurity level, gallium arsenide, forbidden band

ABSTRACT: This is a continuation of earlier work (FTT v. 6, 3738,
1964), where it was shown that the position of the deep levels in the
forbidden band of semiconductors can be determined by the tunnel
spectroscopy method. This method was used in the present investiga-
tion to find the deep levels of Fe, Ni, and Co in gallium arsenide,
which were found to lie at 0.36 ± 0.02 (0.59 ± 0.02), 0.53 ± 0.03 ,

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L 14123-66

ACC NR: AP6000888

and 0.54 ± 0.03 , respectively, measured from the top of the valence band of the pure semiconductor. (two levels were observed for iron). The procedure for preparing special diodes and doping them was described in the earlier paper and also in FTT v. 7, 3042, 1965. The activation energy of the first level of iron (0.36 eV) agrees well with the value 0.37 obtained by others. Orig. art. has: 1 table.

SUB CODE: 20/ SUBM DATE: 10Jul65/ ORIG REF: 003/ OTH REF: 002

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Card 2/2

L 18053-66 EWP(e)/EWT(m)/T/EWP(t) IJP(c) JD/WW/GS/WH
ACC NR: AT6006172 SOURCE CODE: UR/0000/65/000/000/0130/0134
AUTHOR: Chupakhin, M. S.; Glavin, G. G.; Fistul', V. I.

ORG: none

TITLE: Atomic aggregates in semiconductor materials

SOURCE: Khimicheskaya svyaz' v poluprovodnikakh i tverdykh telakh (Chemical bond in semiconductors and solids). Minsk, Nauka i tekhnika, 1965, 130-134

TOPIC TAGS: mass spectrum, graphite, silicon, silicon carbide, gallium arsenide

ABSTRACT: Mass spectra of graphite, silicon, silicon carbide, and gallium arsenide were taken with a high resolution mass spectrometer and analyzed. It was often found that the mass spectra contained lines characteristic of ionic species of multiaatomic aggregates in very minute concentrations (as low as 10^{-7}). It was found that the yield of such charged multiaatomic aggregates is independent of discharge intensity within 40-70 kev, pulse frequency within 10-30,000 cps, and pulse duration within 25-200 usec. An analysis of the mass spectra of graphite, silicon, and silicon carbide is presented. In crystals of silicon-arsenic alloys, a correlation

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ACC NR: AT6006172

was found between the yield of charged multiaatomic aggregates and the arsenic content in the alloy. It is concluded that the correlation between the yield of charged multiaatomic aggregates and the physical properties of the solid materials indicates that mass spectra of multiaatomic molecules reflect the structure of the solid crystal lattice. Orig. art. has: 2 figures, 2 tables.

SUB CODE: 07,20/

SUBM DATE: 31May65/

ORIG REF: 003/

OTH REF: 000

Card 2/2 S/N

FISTUL', V.I.; AGAYEV, A.M.

Determining deep layers of Fe, Ni, and Co in gallium arsenide.
Fiz. tver. tela 7 no. 12:3681-3682 D '65 (MIRA 19:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy
institut redkometallicheskoy promyshlennosti', Moskva.

L 22931-66 EWT(m)/EWP(t) IJP(c) JD/JG
ACC NR: AP6013343

SOURCE CODE: UR/0363/66/002/004/0657/0658

AUTHOR: Fistul', V. I.; Omel'yanovskiy, E. M.; Pelevin, O. V.; Ufimtsev, V. B.

ORG: Giredmet

TITLE: The effect of the nature of dopant on electron scattering and polytropy of dopant in n-type gallium arsenide

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 4, 1966, 657-658

TOPIC TAGS: gallium arsenide, single crystal, semiconductor single crystal, activated crystal, donor impurity, electron mobility, carrier scattering, Hall mobility, impurity polytropy

ABSTRACT: The nature of the dopant was found to influence the electrical property of gallium arsenide single crystals doped with Te, Se, or S in widely varied concentrations in a manner analogous to that observed earlier in strongly doped semiconductor Ge and Si. Single crystals were grown by an oriented crystallization technique under conditions which secured uniform distribution of impurity. Hall mobility at 300K was found to decrease in the sequence $u_{Te} > u_{Se} > u_S$ with increasing electron concentration in the sample. In agreement with theory this pattern of change in electron mobility reflected the effect of the nature of the dopant on scattering of electrons. Another effect of the nature of the dopant was detected in a study of the relation between electron concentration and atomic concentration of the dopant, as determined by

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ACC NR: AP6013343

chemical analysis. This effect was described as polytropy of impurity (dopant), i.e., the appearance of a part of impurity atoms in the crystal in a form, probably as a near order complex, deprived of the donor property. The polytropy was increasing in the sequence Te < Se < S at equal atomic concentration. Orig. art. has: 2 figures. [JK]

SUB CODE: 07/ SUBM DATE: 090ct65/ ORIG REF: 002/ OTH REF: 004/ ATD PRESS:

4237

Card 2/2

L 36930-66 EWT(m)/EWP(t)/ETI IJP(c) JD
ACC NR: AP6012218 SOURCE CODE: UR/0032/66/032/004/0448/0450

AUTHOR: Omel'yanovskiy, E. M.; Meyer, A. A.; Fistul', V. I.

ORG: State Research and Design Institute for the Rare Metal Industry
(Gosudarstvennyy nauchno-issledovatel'skiy i proektnyy institut
redkometallicheskoy promyshlennosti)

TITLE: Determination of the concentrations of donors and acceptors by separation

SOURCE: Zavodskaya laboratoriya, v. 32, no. 4, 1966, 448-450

TOPIC TAGS: quantitative analysis, electron donor, electron acceptor, germanium, silicon

ABSTRACT: The method proposed in the article is based on the assumption that the transfer of free charge carriers in crystals of the germanium and silicon type is connected with their dispersion in the ionized atoms of the impurity and in the acoustical vibrations of the lattice, while the contribution of other possible mechanisms of dispersion may be neglected. On this basis, the article proceeds to a mathematical treatment of the problem. As an experimental check of the expressions arrived at, measurements were made of the temperature dependence of the

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UDC: 537.311.33

L 36930-66

ACC NR: AP6012218

mobility in germanium alloyed with arsenic, over a wide range of concentrations of the alloying impurity. Results of the actual experiments, shown in a figure, agree in a satisfactory way with the theoretical deductions. Orig. art. has: 6 formulas and 2 figures.

SUB CODE: 07, 20/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 004

Card 2/2 116

L 40367-66 E&T(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6014244

SOURCE CODE: UR/0109/66/011/005/0894/0900

36
B

AUTHOR: Iglitsyn, M. I.; Pervova, L. Ya.; Fistul', V. I.

ORG: none

TITLE: Instability in gold-doped n-type germanium upon carrier injection

SOURCE: Radiotekhnika i elektronika, v. 11, no. 5, 1966, 894-900

TOPIC TAGS: germanium semiconductor, semiconductor research

ABSTRACT: Sb- and Au-doped n-Ge 1x1-mm plates (0.003-mm thick) were tested; three lots of specimens had these parameters:

Lot	ρ ohm·cm		N_{Au} per cm^3	$\frac{N_{Sb} - N_{Au}}{N_{Sb}} \%$
	300 °K	77 °K		
B	3	60	$6 \cdot 10^{14}$	107
A	3	585	$6 \cdot 10^{13}$	101
C	2,3	$> 10^4$	$1,2 \cdot 10^{13}$	68

$$2N_{Au} < N_{Sb} < 3N_{Au}$$

$$N_{Au} < N_{Sb} < 2N_{Au}$$

The deep-level specimens were tested for: I-V characteristics, susceptance vs. current characteristic, frequency characteristics, and effect of illumination.

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UDC: 539.293.011.263.2:546.289

L 40367-66

ACC NR: AP6014244

The electric current instability was recorded. Lots A and C exhibited a complex pattern of instability which could be explained by the fact that the minority-carrier injection took place in a strong electric field (thousands v/cm), while in B-lot specimens, the injection occurred in a rather weak (850 v/cm or lower) field. On the strength of the above tests and results reported by M. Kikuchi et al. (J. Phys. Soc. Japan, 1962, 17, 8, 1268) and other sources, the mechanism of the instability phenomena is conjectured. Orig. art. has: 4 figures and 1 table.

SUB CODE: 09 / SUBM DATE: 12Jan65 / ORIG REF: 006 / OTH REF: 004

Card 2/2 hs

ACC NR: AP7004579

SOURCE CODE: UR/0413/66/000/018/0111/0111

INVENTOR: Andrianov, D. G.; Fistul', V. I.

ORG: none

TITLE: Method for determining orientation of a magnetic field and angles of rotation.
Class 42, No. 186154

SOURCE: Izobreteniya, promyshlennye obraztay, tovarnyye znaki, no. 18, 1966, 111

TOPIC TAGS: magnetic field, magnetic field measurement

ABSTRACT: Author's Certificate No. 186154, dated 11 August 1964, has been issued to D. G. Andrianov and V. I. Fistul' for a method described as follows: "A method for determining the orientation of the magnetic field and the angles of rotation, using a Hall emf semiconductor sensor. It differs in that for the purpose of increasing the response the sensor is situated in the magnetic field in such a way that the vectors of current density, the magnetic field and the measured transverse emf lie in a single plane. [JPRS: 38,932]"

SUB CODE: 20 / SUBM DATE: none

Card 1/1

UDC: 621.317.444.013.24:538.632

0926 1422

ACC NR: AP6033586

SOURCE CODE: UR/0181/66/008/010/3135/3138

AUTHOR: Rashevskaya, Ye. P.; Fistul', V. I.; Mil'vidskiy, M. G.

ORG: State Scientific Research and Design Institute of the Rare Metal Industry, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti)

TITLE: Effective mass of electrons in gallium arsenide

SOURCE: Fizika tverdogo tela, v. 8, no. 10, 1966, 3135-3138

TOPIC TAGS: gallium arsenide, effective mass, ir spectrum, carrier density, light reflection coefficient, conduction band, thermal emf, electron scattering

ABSTRACT: This is a continuation of earlier work on the effective mass of the electrons in GaAs (FIT v. 7, 3488, 1965). The present paper reports on a systematic investigation of the dependence of the optical or inertial effective mass of the electrons on their concentration by means of infrared reflection spectra. The samples were n-type GaAs single crystal doped with S, Se, and Te. The measurements were made with an IKS-12 spectrometer at room temperature. The optic effective mass as a function of the carrier density ($2.1 \times 10^{18} - 1.23 \times 10^{19} \text{ cm}^{-3}$) was determined from the reflection-coefficient curves by a standard procedure. The effective mass increases

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ACC NR: AP6033586

increases with the density, starting with $\sim 3 \times 10^{18} \text{ cm}^{-3}$, and is independent of the doping impurity. The shape of the conduction band is determined from the experimental values of the effective mass and are found to agree with the theoretical values. It is also shown that the measured effective masses can be used in conjunction with thermal emf data to determine the scattering parameter which enters into the expression for the thermal emf for a nonparabolic but isotropic band. Orig. art. has: 2 figures, 7 formulas, and 1 table.

SUB CODE: 20/ SUEM DATE: 07Apr66/ ORIG REF: 005/ OTH REF: 007

Card 2/2

ACC NR: AP6037023

(A, N)

SOURCE CODE: UR/0181/66/003/011/3447/3448

AUTHOR: Fistul', V. I.; Vaynshteyn, V. M.

ORG: none

TITLE: Mechanism of scattering of electrons in In_2O_3 films

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3447-3448

TOPIC TAGS: indium compound, electron scattering, Hall effect, semiconducting film, phonon scattering.

ABSTRACT: In view of the scarcity of data on carrier scattering in In_2O_3 , the authors determined the scattering mechanism of electrons by using the results of measurements of the Hall concentration of the carriers N and the thermoelectric power at room temperatures. In_2O_3 films, undoped and doped with tin, were obtained by reactive cathode sputtering. The films were polycrystalline, strongly textured, and the micro-crystal growth was in the [111] direction. The electron gas was degenerate in all samples. From the fact that most experimental points could be reconciled with the theoretical expression for the thermoelectric power it is deduced that scattering is mainly by acoustic phonons. This agrees with the data obtained by R. Weiher (J. Appl. Phys. v. 33, 2834, 1962). The scatter in the experimental values is due to effects connected with the polycrystalline structure of the samples, namely surface phenomena.

Card 1/2

ACC NR: AP6037023

and intercrystalline barriers. Orig. art. has: 1 figure and 2 formulas.

SUB CODE: 20// SUBM DATE: 17Jun66/ OTH REF: 002

Card: 2/2

ACC NR: AP7005851

SOURCE CODE: UR/0181/66/008/012/3606/3612

AUTHOR: Iglitsyn, M. I.; Pel', E. G.; Pervova, L. Ya.; Fistul', V. I.

ORG: State Scientific Research and Design Institute of the Rare Metal Industry, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti)

TITLE: Instability of an electron-hole plasma in a semiconductor, due to the non-linearity of the volt-ampere characteristics

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3606-3612

TOPIC TAGS: semiconductor plasma, semiconductor carrier, volt ampere characteristic, plasma instability, carrier density, semiconductor conductivity

ABSTRACT: The conditions for the occurrence of instability in a solid-state plasma are derived theoretically and the conclusions of the theory are checked experimentally with measurements on p-type germanium single crystals doped with gold and antimony. The tests consisted of determining the volt-ampere characteristics and plots of the hole density and hole-capture cross section against the field. The results show that in a crystal in which the electron and hole components of the conductivity are non-linear (as a result, for example, of the dependence of the recombination cross section on the electric field) oscillations of the conductivity occur. This type of instability has a resonant character. The theoretical calculations yield formulas for the oscillation frequency and for the critical field. The experimentally measured

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ACC NR: AP7005851

period of the oscillations and of the critical field for a germanium crystal doped with gold agreed with the calculated values. The electronic component of the conductivity in such a crystal is shown to have a negative differential resistance. The instability is connected with nonlinearity of the volt-ampere characteristics, and has a resonant character. The authors thank A. Ya. Shul'man, O. V. Konstantinov, V. I. Perel', and D. G. Andrianov for a discussion of the results. Orig. art. has: 3 figures and 15 formulas.

SUB CODE: 20/ SUBM DATE: 13Jun66/ ORIG REF: 002/ OTH REF: 003

Card 2/2

FISUN, 7-14

23330 S/058/61/000/005/014/063
A001/A101

24.6600 (1057,1482)

AUTHORS: Grizhko, V.M., Sikora, D.I., Shkodra-Ul'yanov, V.A., Abramakov, A.D.,
Parlag, A.M., Shramenko, B.I., Fisun, A.N.TITLE: An attempt to determine cross sections of γ -n-reactions in lead by
using a very thick target and a monoenergetic electron beamPERIODICAL: Referativnyy zhurnal. Fizika, no. 6, 1961, 96, abstract 68392 ("Dokl.
i soobshch. Uzhorodsk. un-t. Ser. fiz.-matem. n.", 1960, no.3, 1-4)TEXT: The authors discuss preliminary results of calculations of the cross
section of reaction (γ , n) in Pb from the data, obtained by them earlier, on the
yield of photons from a very thick lead target using a monoenergetic elec-
tron beam (RZhFiz, 1961, 1B471). The authors are of the opinion that the accuracy
of reproducibility of $\sigma(\gamma, n)$ in the region > 15 Mev is by no means worse than
in the region of lower energies. They point out that the method of "difference of
photons", which was applied formerly for calculations of the cross section, yields
the accuracy by 20 - 30% poorer in the region of energies beyond the giant re-
sonance; this can lead to the smoothing out of a possible secondary maximum. The

Card 1/2

An attempt to determine cross sections ...

23330 S/058/61/000/C06/014/063
A001/A101

authors conclude that the developed method of determining cross sections is especially effective for detecting secondary maxima in the region of γ -quanta energies higher than 15 Mev. The problem of absolute accuracy of the method remains open in the article.

A. Moiseyev

[Abstracter's note: Complete translation]

Card 2/2

15120
S/058/63/000/001/015/120
A062/A101

24.6730

AUTHORS:

Sinel'nikov, K. D., Grishayev, I. A., Grizhko, V. M., Pisun, A. N.,
Zykov, A. I., Kitayevskiy, L. Kh.

TITLE:

A 30 MeV energy linear travelling-wave electron accelerator

PERIODICAL: Referativnyy zhurnal, Fizika, no. 1, 1963, 39 - 40, abstract 1A374
(In collection: "Elektron. uskoriteli." Tomsk, Tomskiy un-t, 1961,
3 - 9)

TEXT:

at the Physico-technical Institute of the Academy of Sciences of the Ukrainian
SSSR. The accelerator consists of two sections connected with each other - the
injector section and the main section (with a constant wave phase speed); the
length of the main section is 2.8 m, the value $k_a = 2.48$ (k - wave vector); the
- waveguide radius). The two sections are energized by one klystron power, a
fier, excited by a magnetron generator. The power dissipated in the main section
and in the output load is ~ 10 Mw (in the load 3.3 Mw); the field intensity is
then 150 KV/cm. The accelerating system is composed of separate resonators; the

Card 1/2

A 30 MeV energy linear travelling-wave...

S/058/63/000/001/015/120
A062/A101

electrical contact between them is realized by mechanical ties in the places where the system is connected to the input and output matching transformers. The resonators of the main section are disposed tightly in a copper tube which is also a vacuum housing. The precision of manufacture of the accelerating system (diameter of the resonators and diaphragm apertures) is ± 0.01 mm. The source of electrons is an electron gun operating under the tension of 79 kV (the corresponding electron velocity is 0.5c); the current is 1 amp. in a pulse. The pumping out of the vacuum volume of the accelerator is effected by 5 diffusion pumps; the operating pressure in the klystron amplifier is $2 \cdot 10^{-7}$ mm Hg, in the remaining space $3 \cdot 5 \cdot 10^{-7}$ mm Hg. Measurements have shown that the maximum intensity and energy are attained in the accelerator at the frequency 2796 Mc/s. The mean current of the accelerated electrons is $10 \mu\text{A}$ for a pulse length of $1 \mu\text{sec}$. The diameter of the beam (at the output) under the optimum focusing is 3 - 4 mm, the spectrum width - 8%.

A. Fateyev

[Abstracter's note: Complete translation]

Card 2/2

ARNAUTOV, A.K.; BURSHTEYN, Sh.A.; GENES, V.S.; KOGAN, I.K.; MAMATYUK, Ye.M.;
LITVINENKO, A.S.; MOSKALENKO, I.P.; NIKOLAYEVA, M.G.; PISKAREVA, Ye.V.;
POPOVA, L.Ya.; RUDNEV, L.I.; SIDYAKIN, V.V.; TKACH, V.K.;
FASTYUCHENKO, O.V.; EISUN, A.N.; FRENKEL', L.A.; TSYBENKO, N.A.;
SHRAMENKO, B.I.

Comparative study on the effect of X rays (197 kv) and braking radiation generated with linear accelerator (3 Mev) upon animals. Radiobiologia 2 no.2:211-215 '62.
(MIRA 15:4)

1. Khar'kovskiy institut meditsinskoy radiologii i Ukrainskoy fiziko-tekhnicheskoy institut AN USSR, Khar'kov.
(RADIATION--PHYSIOLOGICAL EFFECT)

ENT(m)/EPA(m)-2/EWA(m)-2 Feb-10/Pt-7 LCP(s)

ACCESSION NR: AP5007685

S/0186/65/010/003/0260/0262

Grishayev, I. O. (Grishayev, I. A.); Lytvynenko, A. S. (Ltvynenko, A. S.);
Vorob'ev, V. I. (Vorob'ev, V. I.); Fysun, A. M. (Fisun, A. M.)

1. Production of accelerated positron beams on a linear electron accelerator

2. Sov. jurnal. teor. i tehn. fiz., 3, 1971.

TOPIC CODES: Linear electron accelerator, positron beam, accelerated positron, tantalum converter

ABSTRACT: The production of an intense positron beam is of great importance since it is a valuable source of important physical data. The authors have studied the effect of the electron current on the intensity of the positron beam produced on an electron-positron converter. The results of these studies are presented in the article.

Card 1/3

L 47383-65

ACCESSION NR: AP5007685

sections. The conversion factor of electrons into positrons is $2 \cdot 10^{-6}$ positrons/electron at the peak, which produces $1.03 \cdot 10^6$ positrons per pulse over a $\pm 10^7$ energy range. Length: 1000 lines; 3 figures and 4 formulas.

ASSOCIATION: Fizyko-tehnichnyy instytut AN URSR, Khar'kov (Institute of Physics and Technical Physics, AN URSR)

SUBMITTED: 11.Jun.64

ENCL: 01

SUB CODE: N

NO REF SCV: 000

OTHER: 705

ATT PRES: 3251

FISUN, M.N., inzh. (Novocherkassk)

Stabilization of slopes by means of planting. Put' i put.khoz.
8 no.5:42 '64. (MIRA 17:3)

FISUN, M.N., inzh.

Roadside planting for protecting mountain roads from land-slides. Avt.dor. 28 no.9:9-10 S '65.

(MIRA 18:10)

CHUCHALIN, I.F. (s. Novyy Tor"yal Mariyskoy ASSR; FISUN, N.I. (g. Zaporozh'ye);
ZAGAYNOV, A.S.; PERKAL'SKIS, B.Sh. (Tomsk); BAGINSKIY, A.P.
(Krasnodar)

Suggestions and advice. Fiz. v shkole 23 no.4:71 J1-Ag '63.
(MIRA 17:1)

1. Mokrousovskaya shkola Kurganskoy oblasti (for Zagaynov).

FISUN, V.M., inzh.; PAK, N.V., inzh.

Manufacture of sharply bent stamped and welded pipe bends
made of stainless steel. Mont. i spets. rab. v stroi. 25 no.1:
17-20 Ja '63. (MIRA 16:6)

1. Krasnoyarskiy zavod montazhnykh zagotovok tresta
Sibtekhmontazh.
(Pipe fittings) (Steel, Stainless)

FISUN, Ya., avtomakhanik

Device for fastening rigid couplings. Avt. transp. 37 no.5:53
My '59. (MIRA 12:8)
(Automobiles--Apparatus and supplies)

AUTHOR: Fisunenko, O.P.

21-1-20/26

TITLE: On the Identity of *Odontopteris Aiutensis* Zalessky with *Neuropterus Obliqua* Brongniart (O tozhdestve *Odontopteris Aiutensis* Zalessky s *Neuropterus Obliqua* Brongniart)

PERIODICAL: *Dopovidi Akademii Nauk Ukrains'koi RSR*, 1958, # 1, pp 85-88
(USSR)

ABSTRACT: The author questions the existence of a new species, *Odontopteris aiutensis* Zalessky, the name of which was introduced by Zalessky to identify an imprint of the tip of a frond found in the Carboniferous deposits of the Donets basin. The data on the species, *Neuropterus obliqua* Brongniart, assembled by the author, indicate the identity of this species with *Odontopteris aiutensis* Zalessky, because of similarity in their structural features.

The article contains 4 figures, 1 table and 4 Russian references.

Card 1/2

21-1-20/26

On the Identity of *Odontopteris Aiutensis Zalessky* with *Neuropterus Obliqua*
Bronniart

ASSOCIATION: Trust "Voroshylovhradvuhleholohiya"

PRESENTED: By Academician of the Ukrainian Academy of Sciences V.G. (V.H.)
Bondarchuk

SUBMITTED: 26 March 1957

AVAILABLE: Library of Congress

Card 2/2 1. Entomology

AUTHOR: Fisunenko, O.P. SOV-21-58-9-24/28

TITLE: On the Reproductive Organs of "Calamites Cistii" Brongniart
(O generativnykh organakh "Calamites cistii" "Brongniart")

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 9,
pp 1006 - 1009 (USSR)

ABSTRACT: While carrying out paleobotanic investigations in the Selez-
nevka rayon of the Donets basin, the author discovered a spe-
cimen in the roof of the ₁₁ coal seam, on the basis of which
he assumes that sporogenous ears of "Palaeostachya elongata"
(Presl) Weiss belong to those plants, the trunks of which
are known under the name of "Calamites Cistii" Brongn. The
author supports his assumption by observations on the distri-
bution of the trunk and sporogenous ears on the specimen.

Card 1/2

SOV-21-58-9-24/28

On the Reproductive Organs of "Calamites Cistii" Brongniart

He describes individual parts of the plant as organs belonging to one and the same paleontological species "Calamites Cistii" Brongn. There is 1 photo and 4 Soviet references.

ASSOCIATION: "Luganskuglegeologiya" Trust

PRESENTED: By Member of the AS UkrSSR, V.G. Bondarchuk

SUBMITTED: April 3, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration

1. Geology--USSR 2. Paleoecology

Card 2/2

FISUNENKO, O.P.

Some plants from middle Carboniferous deposits of the Donets
Basin. Geol. zhur. 18 no.5:79-83 '58. (MIRA 12:1)
(Donets Basin--Paleobotany)

FISUNENKO, O.P.

New representative of the genus *Pholidophloios* Zalessky from Carboniferous sediments of the Donets Basin. Dop. AN URSR no. 10:1436-1439 '60.
(MIRA 13:11)

1. Treat "Luganskgeologiya." Predstavleno akademikom AN USSR
V.G.Bondarchukom [Bondarchuk, V.H.].
(Donets Basin--Lycopodiales, Fossil)

FISUT, V.

2
CZECHOSLOVAKIA

FISUT, V; KODOVA, L; LAMER, J.

1. First Internal Medicine Clinic of the Medical Faculty of Komensky University (1. Interna klinika Lek. fak. Univ. Komenskeho), Bratislava; 2. Institute of Pathological Anatomy of the Medical Faculty of Komensky University (Ustav patologickéj anatomie Lek. fak. Univ. Komenskeho), Bratislava (for all)

Bratislava, Bratislavské lekarske listy, No 9, 1963, pp 548-553

"Malignant Thymus as the Cause of Hydropericardium."

L 06490-67 EWT(m)/EWP(e) WH
ACC NR: AP6028303

SOURCE CODE: UR/0363/66/002/006/1119/1123

AUTHOR: Matveyev, M. A.; Khodskiy, L. G.; Fisyuk, G. K.; Bolutenko, A. I.;
Strugach, L. S. 26
25
13

ORG: Institute of General and Inorganic Chemistry, BSSR (Institut obshchey i neorganicheskoy khimii BSSR)

TITLE: Some properties of glasses based on the systems $BaO-TiO_2-B_2O_3$, $BaO-TiO_2-P_2O_5$,
 $BaO-TiO_2-SiO_2$

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 6, 1966, 1119-1123

TOPIC TAGS: borate glass, phosphate glass, silicate glass, titanium dioxide

ABSTRACT: Glasses of the systems $BaO-TiO_2-B_2O_3$, $BaO-TiO_2-P_2O_5$ and $BaO-TiO_2-SiO_2$ were synthesized from barium carbonate, ammonium monohydrogen phosphate, boric acid, titanium dioxide and quartz sand by melting at 1300-1400°C, and the properties of the glasses were measured on annealed cylindrical specimens. The dependence of the volume electrical resistivity, temperature of the start of softening, chemical stability (to boiling in distilled water), density, and microhardness on the composition was measured, and the crystallizability was determined from tests in a gradient furnace and from thermographic studies. Titanium was shown to decrease the electrical resistivity of the glasses, particularly when it is present in a lower oxidation state. As a rule,

Card 1/2

UDC: 539.213

L 06490-67

ACC NR: AP6028303

not more than one compound is formed during the crystallization of the glasses studied; in silicate glasses, barium silicotitanate $\text{BaO} \cdot \text{TiO}_2 \cdot \text{SiO}_2$ crystallizes out. Low-melting glasses with a high electrical resistivity (10^4 - 10^5 ohm cm) were synthesized, and were found to have a satisfactory chemical stability. Orig. art. has 5 figures and 2 tables. ¹⁵

SUB CODE: 11/ SUBM DATE: 28Jun65/ ORIG REF: 013/ OTH REF: 003

Card

2/21A/E

FISYUKOV, Ivan Yevment'yevich; LARINA, L.M., redaktor; GOLICHENKOZA, A.A.,
tekhnicheskiy redaktor

[In the struggle for coal] V bor'be za ugol'. [Moskva] Izd-vo
VTsSPS Profizdat, 1955. 78 p. (MIRA 9:4)

1. Predsedatel' shakhtkoma shakhty imeni Rumyantseva (for
Fisyukov)
(Donets Basin--Coal mines and mining)

FISYUN, V.W. --

"Flora and Vegetation in the Chu-Iliyski Mountains." Cand Biol Sci,
Inst of Botany, Acad Sci Kazak SSR, Alma-Ata, 1953. (RZhBiol, No 2, Sep 54)

Survey of Scientific and Technical Dissertations Defended at USSR
Higher Educational Institutions (10)

SO: Sum. No. 481, 5 May 55

Country : USSR

M

Category: Cultivated Plants. Medicinal. Essential Oil-Bearing. Toxins.

Abs Jour: RZhBiol., No 22, 1958, № 100493

Author : Fisun, V.V.

Inst : AS Kazakh SSR

Title : Materials on the Study of Turkestan Soaproot.

Orig Pub: Izv. AN KazSSR, Ser. biol., 1957, vyp. 1, 26-30.

Abstract: Turkestan soaproot - *Acanthopyllum* ^{*sic?*} *gypso-*
philoides Rgl. (of the family Caryophylaceae)
is a perennial herbaceous plant with a powerfully developed main root. It grows only in the southern republics of USSR (Kazakhstan, Kirghiz, Uzbek, Tadzhik, Turkmen). Because of

Card : 1/3

Country : USSR

Category: Cultivated Plants. Medicinal. Essential Oil-Bearing. Toxins.

M

Abs Jour: RZhBiol., No 22, 1958, No 100493

the high content of saponins, the roots are procured on commercial scale. They are used in metallurgy for the formation of dross in electrolytic baths. In medicine, saponins are used as an expectorant and a diuretic remedy. They are used in the treatment of chronic eczema and skin itch. In view of the fact that intensified utilization of comparatively small areas of the natural growths of soaproot leads to their exhaustion, observations were conducted on the experimental sowings during 1951-1953, on the basis of which conclusions were reached

Card : 2/3

M-192

Country : USSR

M

Category: Cultivated Plants. Medicinal. Essential Oil-Bearing. Toxins.

Abs Jour: RZhBiol., No 22, 1958, No 100493

that Turkestan soaproot under the conditions of cultivation, has time to pass through all developmental stages (from seed to seed) in the course of one vegetation period. The best time for the sowing of the seeds is in fall, under the snow. Development of the plants in the first year of life is protracted in comparison with the development under natural conditions. Application of complete mineral fertilization promotes the accelerations of the growth and development of the plants. -- L. N. Korolev

Card : 3/3

USSR/Cultivated Plants - Medicinal. Essential Oil-Bearing.
Toxins.

M

Abs Jour : Ref Zhur Biol., No 18, 1958, 82588

Author : Fisyum, V.V.

Inst : Institute of Botany KazakhSSR

Title : Conditions of the Growth of *Anabasis aphylla* in Some
Regions of South Kazakhstanskaya Oblast'.

Orig Pub : Tr. In-ta botan. AN KazSSR, 1957, 5, 270-283

Abstract : *Anabasis aphylla* is the principal raw material for ob-
taining anabasine sulfate the only effective vegetable
insecticide. Its procurement is carried on in Frunzen-
skiy, Shaul'derskiy, Turkestanskiy and Aryeskiy regions
of South Kazakhstanskaya Oblast' where it is encountered
on primary sierozem, sierozem and meadow-saline soils
in wormwood-saltwort and ephemeral saltwort vegetative

Card 1/2

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2000

CIA-RDP86-00513R00041331

PAVLOV, N.V., akademik; AGEYEEVA, N.T.; BAYTENOV, M.B.; GOLOSKOKOV, V.P.,
kand.biolog.nauk, red.; KORNILOVA, V.S.; POLYAKOV, P.P.. Prinimali
uchastiye: VASIL'YEVA, A.N.; ORAZOVA, A.; FISYUN, V.V.. BYKOV,
B.A., red.; KUBANSKAYA, Z.V., kand.biolog.nauk.,red.; SUVOROVA, R.I.,
red.; ALFEROVA, P.F., tekhn.red.

[Flora of Kazakhstan] Flora Kazakhstana. Glav.red.N.V.Pavlov.
Sost.N.T.Ageeva i dr. Alma-Ata. Vol.3. 1960. 457 p. (MIRA 13:5)

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. Institut botaniki.
2. AN KazSSR (for Pavlov). 3. Chlen-korrespondent AN KazSSR (for
Bykov).

(Kazakhstan--Dicotyledons)

BAYTENOV, M.B.; BYKOV, B.A.; VASIL'YEVA, A.N.; GAMAYUNOVA, A.P.;
GOLOSKOKOV, V.P., kand.biolog.nauk; DOBROKHOTOVA, K.V.;
KORNILOVA, V.S.; FISTUM, V.V.; PAVLOV, N.V., akademik, glavnnyy
red.; KUBANSKAYA, Z.V., kand.biolog.nauk; SUVOROVA, R.I.,
red.; ALFEROVA, P.P., tekhn.red.

[Flora of Kazakhstan] Flora Kazakhstana. Glav.red. N.V.Pavlov.
Sost.M.B.Baitenov i dr. Alma-Ata, Izd-vo Akad.nauk Kazakhskoi
SSR. Vol.4. 1961. 545 p. (MIRA 14:4)

1. AN Kazakhskoy SSR (for Pavlov). 2. Chlen-korrespondent
AN KazSSR (for Bykov).
(Kazakhstan--Botany)

BAYTENOV, M.S.; VASIL'YEVA, A.N.; GAMAYUNOVA, A.P.; GOLOSKOKOV, V.P.;
ORAZOVA, A.; ROLDUGIN, I.I.; SEMIOTROCHEVA, N.L.; FISYUN, V.V.;
TEREKHOVA, V.I.; PAVLOV, N.V., akademik, glav. red.; BYKOV, B.A.,
red.; GOLOSKOKOV, V.P., kand. biolog. nauk, red.; KUBANSKAYA, Z.V.,
kand. biolog. nauk, red.; SUVOROVA, R.I., red.; ALFEROVA, P.F.,
tekhn. red.

[Flora of Kazakhstan] Flora Kazakhstana. Glav. red. N.V.Pavlov i
dr. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR. Vol.5. 1961.
512 p. (MIRA 14:10)

1. AN Kazakhskoy SSR (for Pavlov). 2. Chlen-korrespondent AN Ka-
zakhskoy SSR (for Bykov).
(Kazakhstan—Leguminosae)

VASIL'YEVA, A.N.; GAMAYUNOVA, A.P.; GOLOSKOKOV, V.P., kand. biol.
nauk; ORAZOVA, A.; ROLDUGIN, I.I.; SEMIOTROCHEVA, N.L.;
FISYUN, V.V.; MENZHULINA, N.A., red. ; ALFEROVA, P.F.,
tekhn. red.

[Illustrated guide to plants of the family Leguminosae of
Kazakhstan] Illiustrirovannyi opredelitel' rastenii semeistva
bobovykh Kazakhstana. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi
SSR, 1962. 357 p. (MIRA 15:6)

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. Institut botaniki.
(Kazakhstan—Leguminosae)

VASIL'YEVA, A.N.; GAMAYUNOVA, A.P.; GOLOSKOKOV, V.P., kand. biol. nauk; KARMSHEVA, N.Kh.; KROVIN, Ye.P.; OBRAZOVA, A.; ROLDUGIN, I.I.; SEMIOTROCHEVA, N.L.; PISYUN, V.V.; PAVLOV, N.V., akademik, glav. red.; SUVOROVA, R.I., red.; ALFEROVA, P.F., tekhn. red.

[Flora of Kazakhstan] Flora Kazakhstana. Glav. red. N.V. Pavlov. Sost. A.N. Vasil'eva i dr. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR. Vol.6. 1963. 462 p. (MIRA 16:6)

1. Akademiya nauk Kazakhskoy SSR(for Pavlov).
(Kazakhstan--Botany)

VASIL'YEVA, A.N.; GAMAYUNOVA, A.P.; GOLOSKOKOV, V.P., kand. biol. nauk; DMITRIYEVA, A.A.; KARIMYSHEVA, N.Kh.; KUBANSKAYA, Z.V., kand. biol. nauk; ORAZOVA, '.; PAVLOV, N.V., akademik; ROLDUGIN, I.I.; SEMIOTROVKHEVA, N.L.; TEREKHOVA, V.I.; FISYUN, V.V.; TSAGOLOVA, V.G.; SUVOROVA, R.I., red.; IVANOVA, E.I., red.; BYKOV, B.A., red.

[Flora c^ Kazakhstan] Flora Kazakhstan. Glav. red. N.V. Pavlov. Sost. A.N.Vasil'yeva i dr. Alma-Ata, Izd-vo AN Kazakh. SSR. Vol.7. 1964. 494 p. (MIRA 17:6)

1. Akademiya nauk Kaz.SSR (for Pavlov). 2. Chlen-korrespondent AN KazSSR (for Bykov).

VASIL'YEVA, A.N.; GAMAYUNOVA, A.P.; DMITRIYEVA, A.A.; GOLOSKOV,
V.P., kand. biol. nauk; ZAYTSEVA, L.G.; KARMSHEVA, N.Kh.
ORAZOVA, A.; PAVLOV, N.V., akademik; ROLDUGIN, I.I.;
SEMIOTROCHEVA, N.L.; TEREKHOVA, V.I.; FISYUN, V.V.;
TSAGALOVA, V.G.; SUVOROVA, R.I., red.

[Flora of Kazakhstan] Flora Kazakhstana. Glav. red. N.V.
Pavlev. Alma-Ata, Nauka. Vol.8. 1965. 444 p.
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MAKODZEB, I.A.; FISYUNOV, A.V.

Fecundity of some weeds. Bot. zhur. 47 no.9:1358-1362 S '62.
(MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kukuruzy,
Dnepropetrovsk.

(Weeds)

MAKODZERA, I.A., kand.sel'skokhoz.nauk; FISYUNOV, A.V., aspirant

Sensitivity of corn to simazine. Zashch.rast.ot vred.i bol. 5
no.7:30 Jl '60. (MIRA 16:1)

1. Vsesoyuznyy institut kukuruzy, g. Dnepropetrovsk.
(Corn (Maize)) (Triazine)

FISYUNOV, A.V., kand. sel'skokhoz. nauk

Atrazine and simazine in millet fields. Zashch. rast. ot
vred. i bol. 8 no.3:20-21 Mr '63. (MIRA 17:1)

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FISYUNOV, A. V.

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Dnepropetrovsk.

PISYUNOV, A.V.

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50 no.1:132-138 Ja '65. (MIRA 18:3)

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Dnepropetrovsk.

FISZ, JERZY

PAGE 1 BOOK INFORMATION - POL/190

8 numbered books: 1. General introduction, 2. Radioelectronics, radio-
 electronics, microwave, powertrain, power, robotics, hydrodynamics,
 dynamics, in: MILITARY TECHNOLOGY: Mathematics, Weapons, Radiation
 effects, hydrodynamics, optics, nuclear, infrared, kinetics, elec-
 trical, hydroelectronics, defense, hydro, Mathematics, Optics, Hydrodynamics,
 1979, 370 p., Berlin 1979 limited, 3,000 copies printed. [Berlin]
 (Bibliography, index, tables, notes, references, 1979, 370 p., Berlin 1979 limited, 3,000 copies printed. [Berlin]
 Bibliography, notes, references, 1979, 370 p., Berlin 1979 limited, 3,000 copies printed. [Berlin]

Author(s): Mihail M. Mihailovici, Mihail Mihailovici, Tech. M. I.

Editor(s): Mihail Mihailovici, Mihail Mihailovici, Tech. M. I.

Format: This book is intended for the general reader interested in modern

weapons development.

Contents: The book contains 11 articles in which the various types of modern weapons systems are discussed. The discussion is based on Western weapons. The basic principles of atomic reactions are given and atomic explosions are described. Cities as targets, the formation and layout of bombs, theory of armament, radiation substances and the effects of radiation on living

Date 2/1

systems are explained. Attention is paid to aviation, and related systems described and some information on computers is included. Principles of nuclear weapons are given and basic nuclear weapons are described. The book also covers ground surveillance and guidance for aircraft guidance, ground surveillance for artillery fire control, surveillance of aircraft and aerial surveillance. The principles of television are explained and possible uses of television in the armed forces are given.

Appendix: Radiolocation, night vision equipment, etc. are briefly described. Fundamentals of hydroelectronics are given and application of acoustic waves in various media is described. The application of acoustics in the detection of ships is pointed out. In the field of missiles the principles of their operation and a brief history of missile development are given. Nuclear and radioactive launches are discussed and some information on rocket launching from aircraft and naval ships is given. Space control and navigation systems are briefly discussed in any technical guidance and navigation sections. No personalities are mentioned. There are no references.

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Mathematical Reviews
Vol. 16 No. 2
Feb. 1954
Analysis

Fisz, M. The limiting distribution of the difference of two Poisson random variables. *Zastosowania Mat.* 1, 41-45 (1953). (Polish, Russian and English summaries)

The statement is proven that if the random variables X_1 and X_2 are independent and have Poisson distributions with $E(X_1) = \lambda_1$, $E(X_2) = \lambda_2$, then their standardized difference $X = [(X_1 - X_2) - (\lambda_1 - \lambda_2)] / (\lambda_1 + \lambda_2)^{1/2}$ has asymptotically distribution $N(0, 1)$ as $\lambda_1 \rightarrow +\infty$ and $\lambda_2 \rightarrow +\infty$. This is obvious since then X_1 and X_2 are each asymptotically normal. The author could have concluded that already $\lambda_1 + \lambda_2 \rightarrow +\infty$ is sufficient for X having asymptotically distribution $N(0, 1)$. Of interest is a numerical tabulation for $\lambda_1 = 2$, $\lambda_2 = 1$, given in the paper, which suggests that even for different and fairly small λ_1, λ_2 the normal approximation is good.

Z. Birnbaum (Seattle, Wash.).

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Proofs of results announced earlier [Bull. Acad. Polon. Sci. Cl. III. 1, 235-238 (1953); these Rev. 15, 635].
J. Wolfowitz (Ithaca, N. Y.).

3753 Calculus of Probability and Mathematical Statistics

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it to [unclear]*

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Vol. 1 No. 4 1955.

KOSMOS.

Poland

SCIENCE

So: East European Accessions, Vol. 5, May 1956

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of this expansion he obtains an asymptotic
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M. F. Domb

F123, M.

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R. J. Chung (Syracuse, N.Y.).

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The realizations of some purely discontinuous stochastic process. In English p.63
BULLETTIN. Varsovie
Vol. 4, no. 2, 1956

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Analytical characterization of a co posed nonhomogeneous Poisson process.
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(STUDIA MATHEMATICA. Vol. 15, no. 3, 1956, Warszawa, Poland)

SO: Monthly List of East European Accessions (EWAL) IC. Vol. 6, no. 12, Dec. 1957.
Uncl.

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Realization of some stochastic processes. In English. p. 359.
(STUDIA MATHEMATICA. Vol. 15, no. 3, 1956. Warszawa, Poland)

SO: Monthly List of East European Accessions (EEAL) 1956. Vol. 5, no. 12, Dec. 1957.
Uncl.

★ Czechowski, T.; Fisz, M.; Iwiński, T.; Lange, O.;
Sadowski, W.; i. Zasępa, R. *Tablice statystyczne*.
[Statistical tables.] Edited by Wiesław Sadowski.
 Państwowe Wydawnictwo Naukowe, Warsaw, 1957.
 158 pp. 32 zł.

This collection contains the usual "classical" tables and, in addition, a number of useful tabulations of recent origin. Among the former are tables of the normal, bi-

nomial, Poisson, Chi-square, t , z , and F distributions; a page of tables dealing with the sample correlation coefficient; random numbers; assorted auxiliary tables such as binomial coefficients, squares, cubes, roots, logarithms, etc. Among the newer tables are those dealing with distribution-free techniques such as run-tests, sign-test, Kolmogorov's statistic D_n , Smirnov's $D_{m,n}$, and two entirely-new tables of "golden" and "iron" numbers due to H. Steinhaus. The tables are selected and edited with great care, and the explanatory text is excellent.

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FISZ, M.

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Uncl.

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PHASE I BOOK EXPLOITATION POL/2129

Fisz, Marek

Rachunek prawdopodobienstwa i statystyka matematyczna (Probability Theory and Mathematical Statistics) 2d ed., rev. and enl. Warszawa, PWN, 1958. 530 p. (Series: Biblioteka matematyczna, t. 18) Errata slip inserted. 5,000 copies printed.

Editorial Board of Series: Stanislaw Golab, Bronislaw Knaster, Kazimierz Kuratowski, Stanislaw Mazur, Wladyslaw Orlicz, Marceli Stark (Ed.), and Stefan Straszewicz.

PURPOSE: This book is intended for readers interested in the fundamentals of modern probability theory and mathematical statistics. It can be used as a textbook by senior students.

COVERAGE: This is the second edition of the book under the same title but considerably enlarged and revised; new chapters concerning Markov chains, stochastic processes and the theory of series have been added, certain concepts modified, and many chapters expanded and reorganized. The number of examples illustrating the application of probability theory and

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Probability Theory and Mathematical Statistics

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mathematical statistics to various fields has been considerably increased. The book, therefore, may be treated as entirely new. The book consists of two parts. The first part deals with probability theory. Using contemporary contributions in this field, the author has constructed a mathematical model of the theory based on modern concepts. In the second part of the book the author deals with mathematical statistics, presenting methods of solution of many statistical problems using probability theory. In connection with statistical studies, the probability theory itself is extended, especially in fields which are close to probability theory. Many references are given in connection with the questions studied which provide valuable information for people interested in more advanced studies of these problems. The author thanks Professor Dr. Edward Marczewski for his assistance in preparing the first edition and Docent Dr. Kazimierz Urbanik for his help with the second edition. He also thanks Masters Lech Kubik, Rolf Selanke, and Józef Włoc for their assistance. There are 202 references: 14 Polish, 40 Soviet, 103 English, 22 French, 17 German, 5 Italian, and one Dutch.

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